

CHART #4 - US FULL SERVICE/286K GRL/13.0% NBR
THEORETICAL SINGLE CAR STOP/LEVEL GRADE

FIG. 1

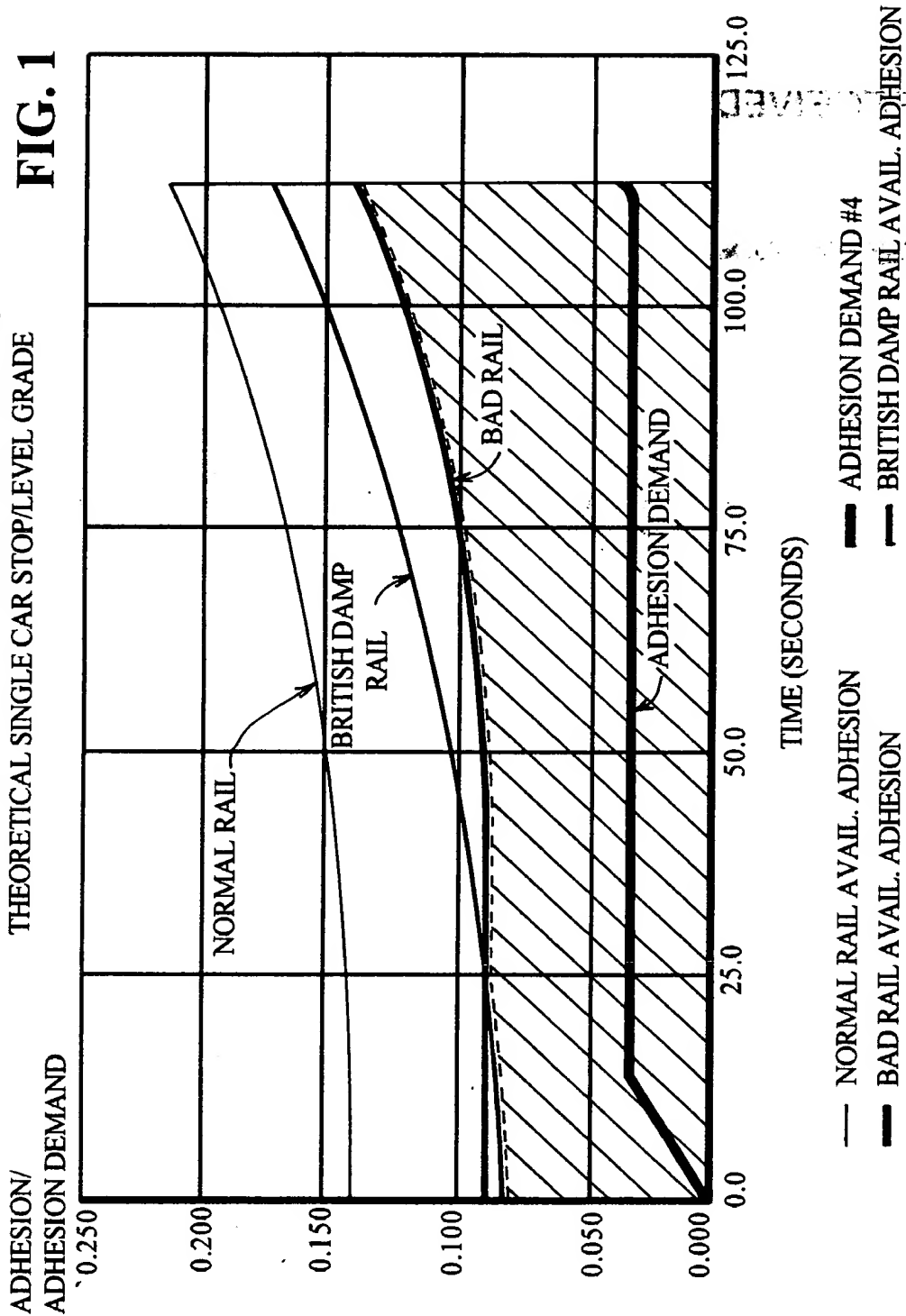
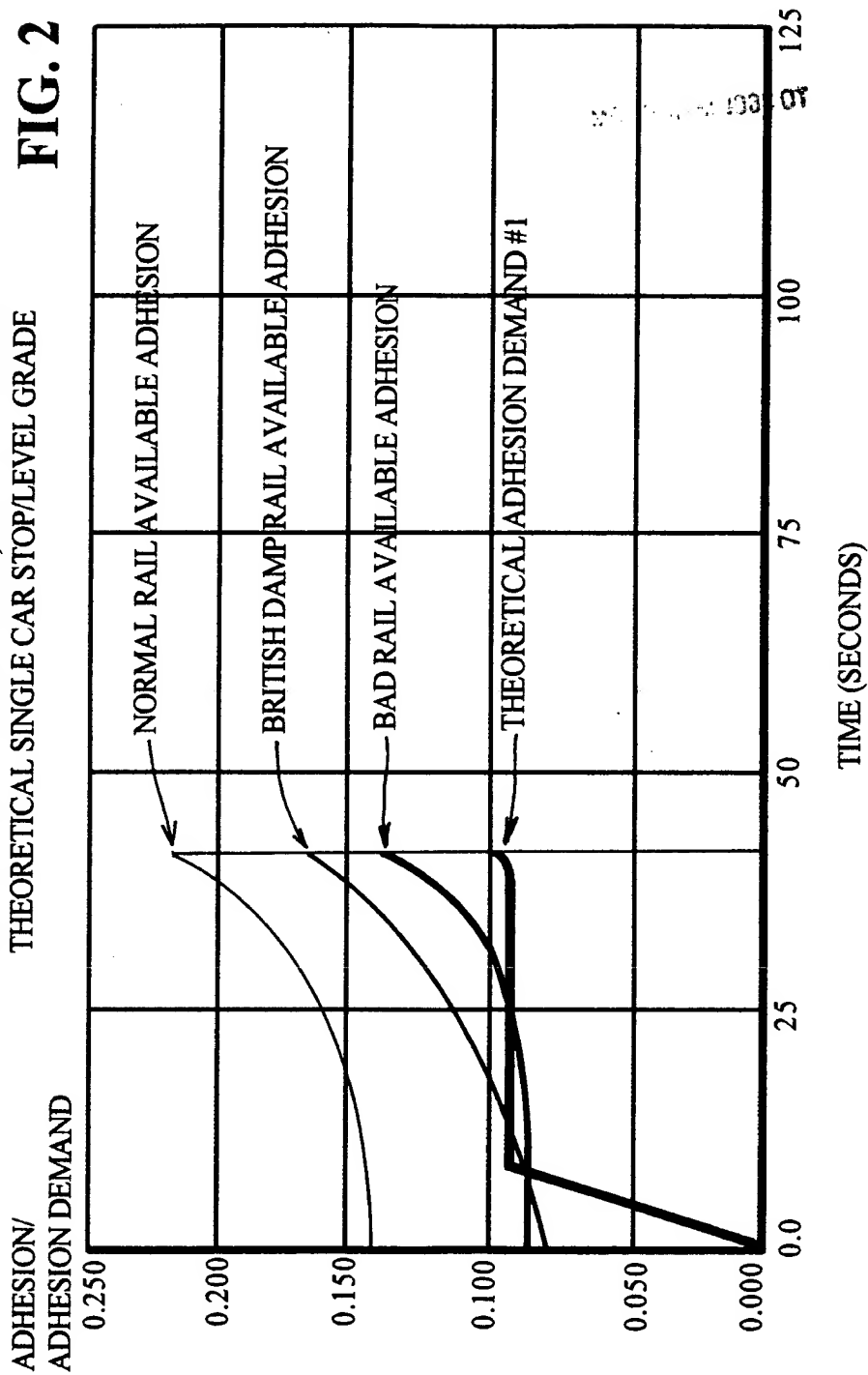


CHART #1 - US FULL SERVICE/52,260 LT. WT./38.0% NBR
THEORETICAL SINGLE CAR STOP/LEVEL GRADE

FIG. 2

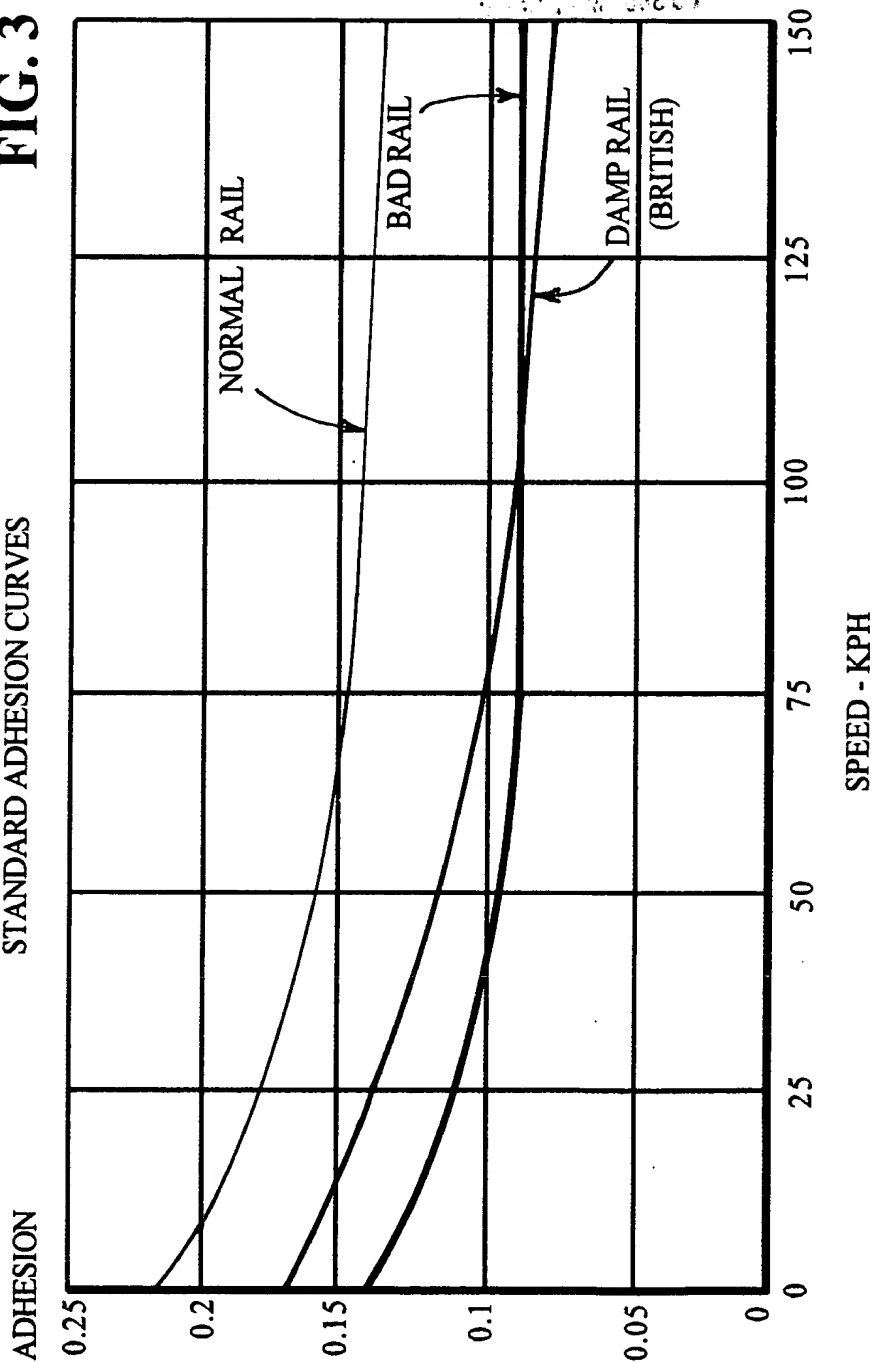


RECEIVED



FIG. 3

STANDARD ADHESION CURVES



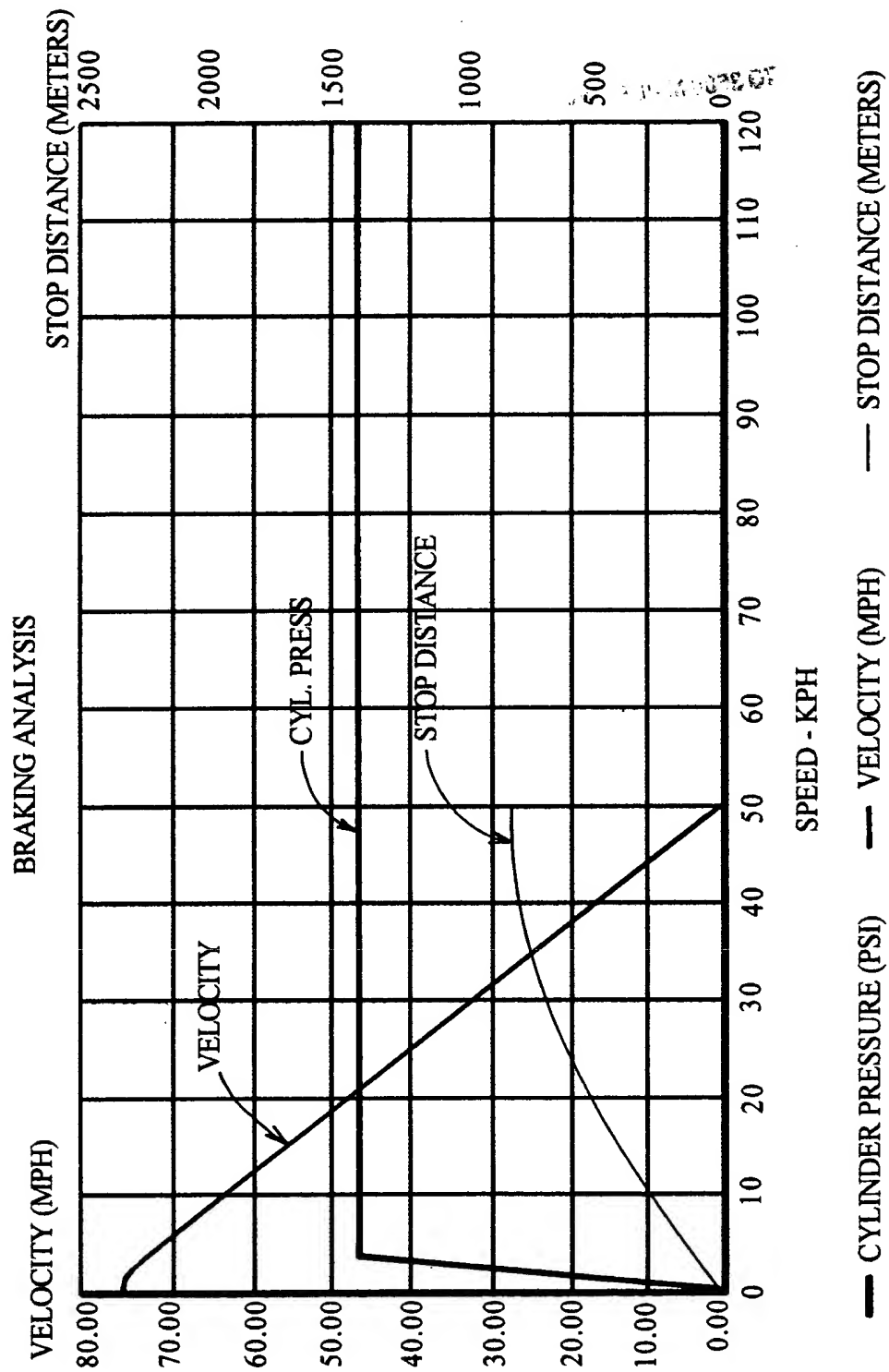
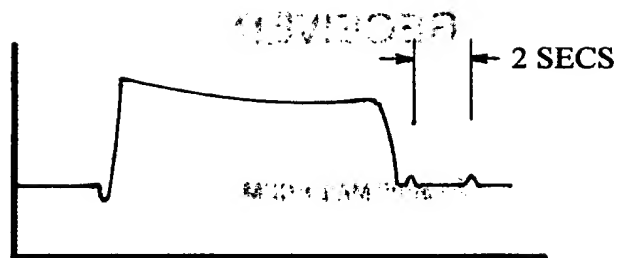


FIG. 4

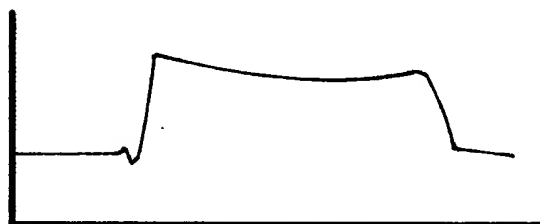
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TEST 14
58.8 MILE/HR.

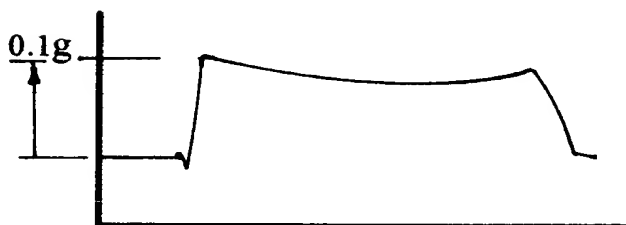


TEST 12
65.5 MILE/HR.



CHANGE IN DECELERATION
DUE TO BREAK SHOE FADE

TEST 10
72.9 MILE/HR.



DECELERATION →

FIG. 5

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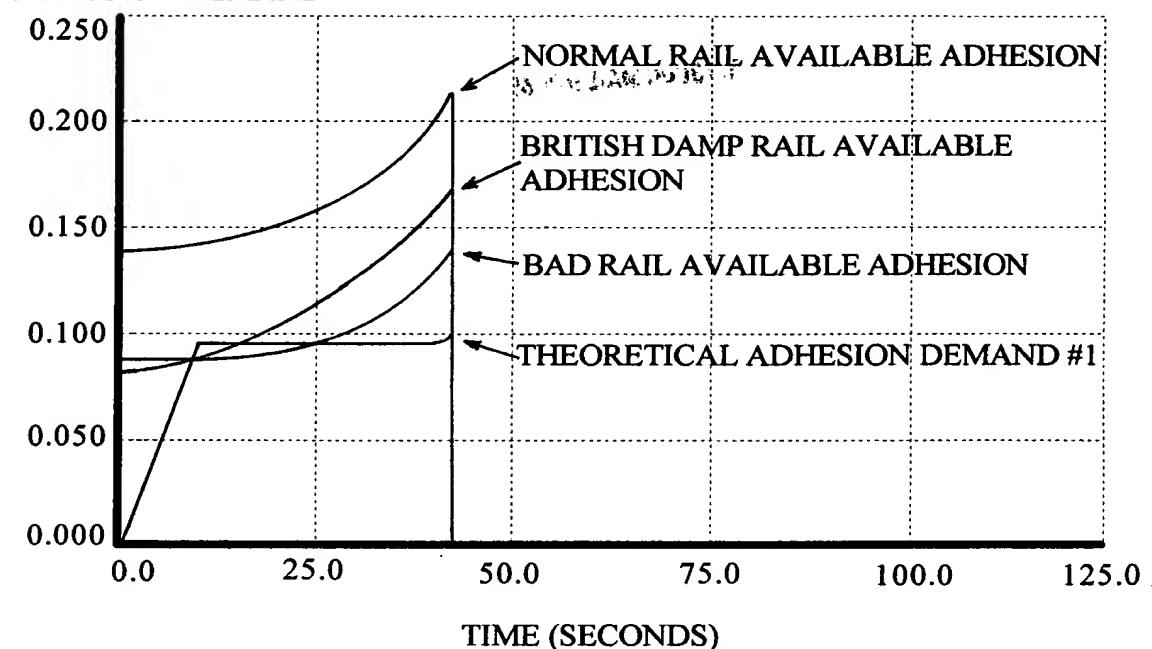


CHART #2 - US EMERGENCY/52,260 LT. WT./45.6% NBR
THEORETICAL SINGLE CAR STOP/LEVEL GRADE

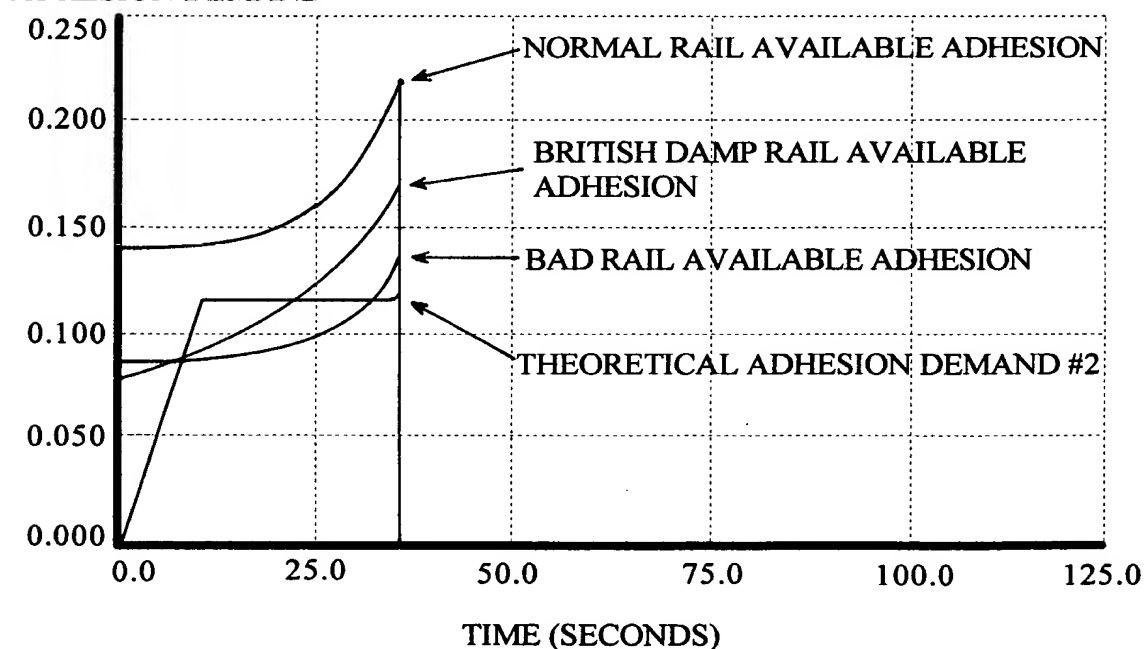


CHART #3 - US EMERGENCY/286K GRL/15.5% NBR
ADHESION/ THEORETICAL SINGLE CAR STOP/LEVEL GRADE
ADHESION DEMAND

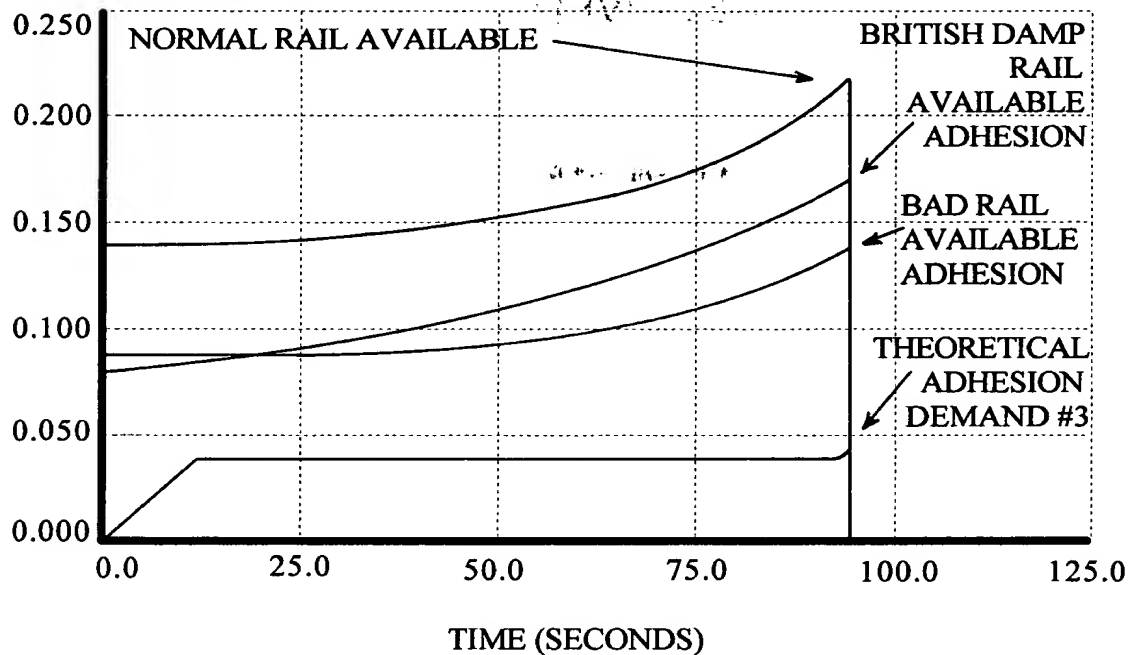


CHART #4 - US FULL SERVICE/286K GRL/13.0% NBR
ADHESION/ THEORETICAL SINGLE CAR STOP/LEVEL GRADE
ADHESION DEMAND

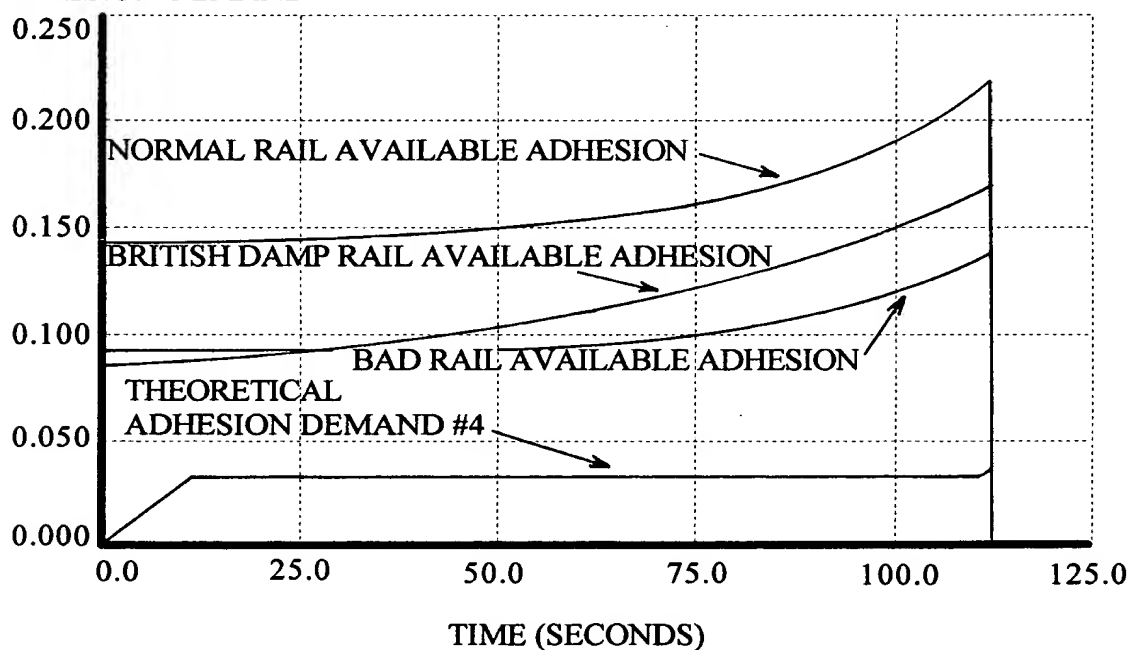


CHART #5- UK TARE/63,947 LT. WT./29.0% NBR
 ADHESION/ THEORETICAL SINGLE CAR STOP/LEVEL GRADE
 ADHESION DEMAND

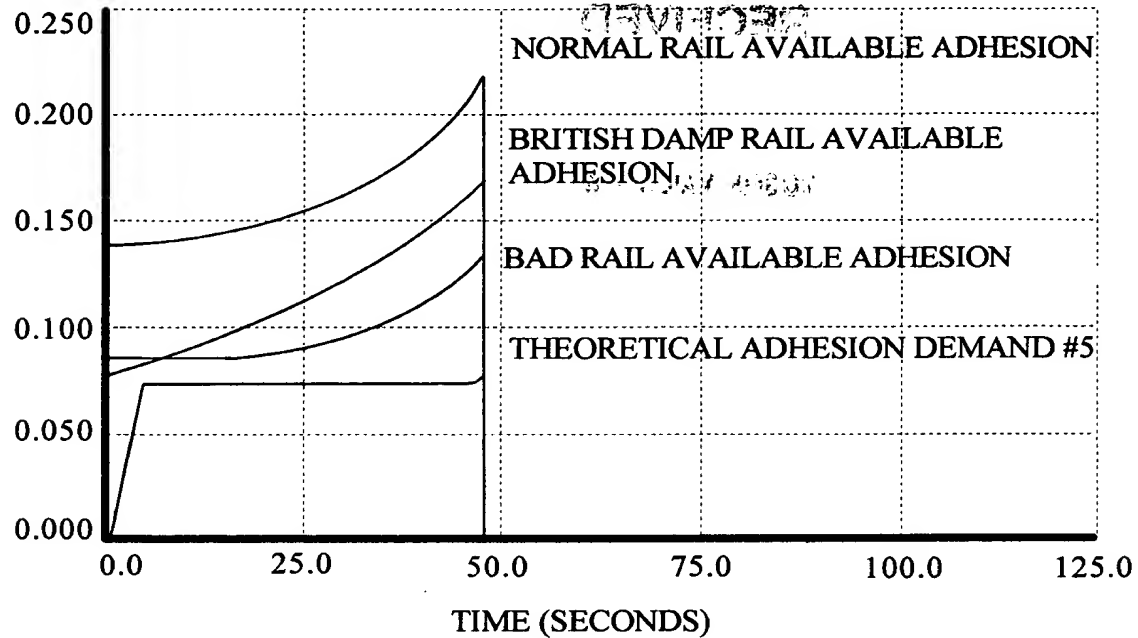


CHART #6 - UK 90 METRIC TON/198.5K GRL/28.6% NBR
 ADHESION/ THEORETICAL SINGLE CAR STOP/LEVEL GRADE
 ADHESION DEMAND

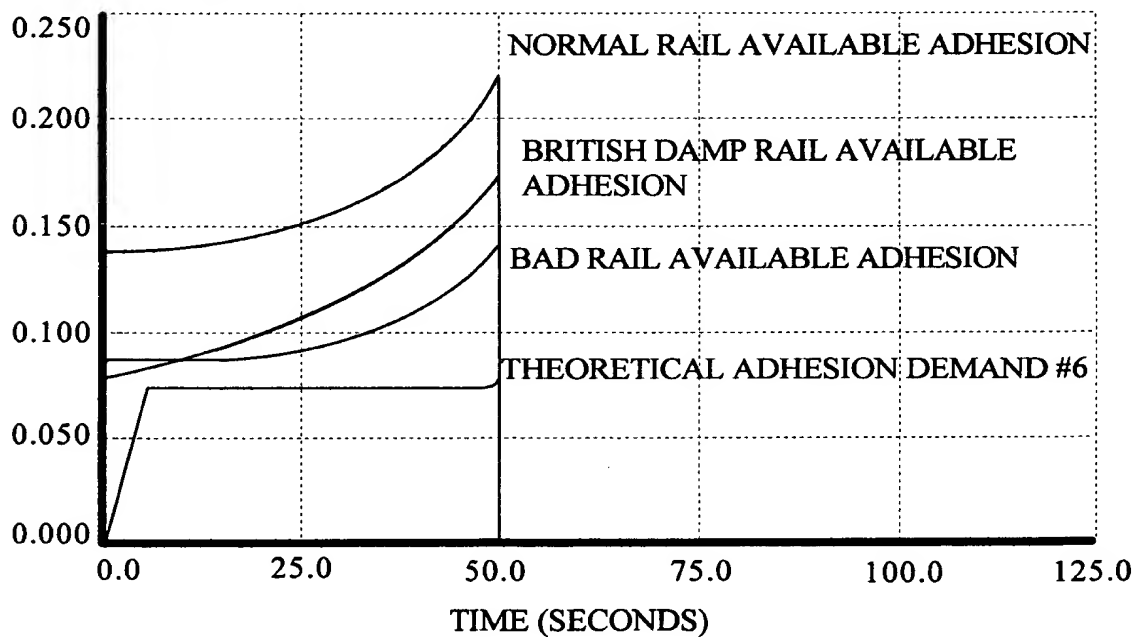


CHART #7- UK 102 METRIC TON/225K GRL 28.6% NBR
THEORETICAL SINGLE CAR STOP/LEVEL GRADE
ADHESION/
ADHESION DEMAND

